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EXAMINER	
VARGAS, DIXOMARA	
ART UNIT	**PAPER NUMBER**
2859	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,088	FLEURY ET AL.	
	Examiner	Art Unit	
	Dixomara Vargas	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 21-41 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claimed invention is directed to a judicial exception to 35 U.S.C. 101 (i.e., an abstract idea) and is not directed to a practical application of such judicial exception (e.g., because the claim does not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result). The language in the claim suggest only a combination of instructions without reciting a structure associated to the procedure and lacks a tangible result and the end of the procedure.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 21-23 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Baldwin (US 5,162,733 A).

With respect to claim 21, Baldwin discloses a method for measuring the wettability of a porous rock sample in the presence of water and oil, comprising determining a water wet pore surface of the sample and an oil wet pore surface of the sample when the sample is saturated with water and oil, and calculating the wettability index from a combination of the water wet pore surface and the oil wet pore surface (Abstract, Columns 2 and 9, lines 47-60 and 10-30 respectively).

5. With respect to claim 22, Baldwin discloses the step wherein the water wet pore surface and of the oil wet pore surface is determined when the sample is saturated with water and oil from measurements (Column 2, lines 47-60) of relaxation times obtained from the surfaces of the sample placed in a nuclear magnetic resonance device (Column 4, lines 27-45).

6. With respect to claim 23, Baldwin discloses the step wherein the wettability index is obtained by the relation: $I_{NMR} = \frac{SM_w - SM_o}{SM_w + SM_o}$ where SM_w is the water wet pore surface and SM_0 is the oil wet pore surface when the porous rock sample is saturated with water and oil (Column 9, lines 1-30).

7. With respect to claim 30, Baldwin discloses the step wherein the wettability index is obtained by the relation: $I_{NMR} = \frac{SM_w - SM_o}{SM_w + SM_o}$ where SM_w is the water wet pore surface and SM_0 is the oil wet pore surface when the porous rock sample is saturated with water and oil (Column 9, lines 1-30).

Allowable Subject Matter

8. Claims 24-29 and 31-41 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claims 24-29 and 31-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

a. With respect to claim 24, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the wettability index is obtained by the relation:

$I_{NMR} = \log_{10} \frac{SM_w}{SM_o}$ where SM_w is the water wet pore surface and SM_0 is the oil wet pore surface when the porous rock sample is saturated with water and oil in combination with the remaining limitations of the claim.

b. With respect to claim 25, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the wettability index is determined by the following operations:

a) measuring the relaxation times of the water-saturated sample;

b) measuring the relaxation times of the sample in the presence of oil and water, in a zone close to saturation of the sample;

c) measuring the relaxation times of the water in the sample in the presence of oil, in a zone close to residual saturation;

d) measuring the relaxation times of the sample in a state where its 100% oil saturation point is reached; and

e) combining the measurements of the relaxation times obtained from a)-d) so as to obtain the wettability index in combination with eth remaining limitations of the claims 21 and 22 above.

c. With respect to claims 26, 27, 29, 37, 38 and 39, the claims have been found allowable due to its dependency on claim 25 above.

d. With respect to claim 28, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the oil has an intrinsic relaxation time as great as possible and as close as possible to that of the water is selected in combination with the remaining limitations of the claim 21 above.

e. With respect to claim 31, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the wettability index is obtained by the relation:

$I_{NMR} = \log_{10} \frac{SM_w}{SM_o}$ where SM_w is the water wet pore surface and SM_0 is the oil wet pore

surface when the porous rock sample is saturated with water and oil in combination with the remaining limitations of the claims 21 and 22 above.

f. With respect to claim 32, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the wettability index is determined by the following operations:

a) measuring the relaxation times of the water-saturated sample;

b) measuring the relaxation times of the sample in the presence of oil and water, in a zone approaching saturation of the sample;

c) measuring the relaxation times of the water in the sample in the presence of oil, in a zone approaching residual saturation;

d) measuring the relaxation times of the sample in a state where its 100% oil saturation point is reached; and

e) combining the measurements of the relaxation times obtained from a)-d) so as to obtain the wettability index in combination with eth remaining limitations of the claims 21 and 23 above.

g. With respect to claim 33, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the wettability index is determined by the following operations:

a) measuring the relaxation times of the water-saturated sample;

b) measuring the relaxation times of the sample in the presence of oil and water, in a zone approaching saturation of the sample;

c) measuring the relaxation times of the water in the sample in the presence of oil, in a zone approaching residual saturation;

d) measuring the relaxation times of the sample in a state where its 100% oil saturation point is reached; and

e) combining the measurements of the relaxation times obtained from a)-d) so as to obtain the wettability index in combination with eth remaining limitations of the claims 21 and 24 above.

h. With respect to claim 34, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the oil has an intrinsic relaxation time as great as possible and as close as possible to that of the water is selected in combination with the remaining limitations of the claims 21 and 22 above.

i. With respect to claim 35, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the oil has an intrinsic relaxation time as great as possible and as close as possible to that of the water is selected in combination with the remaining limitations of the claims 21 and 23 above.

j. With respect to claim 36, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the oil has an intrinsic relaxation time as great as possible and as close as possible to that of the water is selected in combination with the remaining limitations of the claims 21 and 24 above.

k. With respect to claim 40, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the wettability index is determined by the following operations:

a) measuring the relaxation times of the water-saturated sample;

b) measuring the relaxation times of the sample in the presence of oil and water, in a zone approaching saturation of the sample;

c) measuring the relaxation times of the water in the sample in the presence of oil, in a zone approaching residual saturation;

d) measuring the relaxation times of the sample in a state where its 100% oil saturation point is reached; and

e) combining the measurements of the relaxation times obtained from a)-d) so as to obtain the wettability index in combination with eth remaining limitations of the claims 21, 22 and 30 above.

1. With respect to claim 41, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a method for measuring a wettability of a porous rock sample in a presence of water and oil comprising the step wherein the wettability index is determined by the following operations:

a) measuring the relaxation times of the water-saturated sample;

b) measuring the relaxation times of the sample in the presence of oil and water, in a zone approaching saturation of the sample;

c) measuring the relaxation times of the water in the sample in the presence of oil, in a zone approaching residual saturation;

d) measuring the relaxation times of the sample in a state where its 100% oil saturation point is reached; and

e) combining the measurements of the relaxation times obtained from a)-d) so as to obtain the wettability index in combination with eth remaining limitations of the claims 21, 22 and 31 above.

Response to Arguments

11. Applicant's arguments filed 02/20/07 have been fully considered but they are not persuasive.

12. Applicant argues that Baldwin fails to teach or fairly suggest the step of calculating the wettability index from a combination of the water wet pore surface and the oil wet pore surface.

13. The examiner disagrees with applicant's argument because Baldwin discloses the step wherein the oil wet pore surface represented by equation #6 (Column 8, lines 20-24) and the water wet pore surface represented by equation #9 (Column 8, lines 66-67) are combined to calculate the wettability index or the rock (Column 9, lines 10-30).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Patent Examiner
Art Unit 2859